Survey taker number: 15
Hi, my name is I am a student at the University of California at Santa Cruz. I am working on this project as a part of my studies. The purpose of this survey is to analyze recreational boating activities in the Delta and to measure any changes in recreation and visitation that might occur during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California WaterFix project. Your responses will only be reported in aggregate. Can you take about fifteen minute with me to complete our survey?  First, I would like to get some general information about your recreational boating activities.
1. Do you own a boat or do you rent a houseboat or other type of boat to go boating?  Own: Yes No  Rent: Yes No  If No to both rent and own then end survey.
2. Which best describes your boat or boats (select all that apply)?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other:
<ul> <li>3. Approximately how many times per year do you visit the Delta for recreational boating? <ul> <li>A. I do not go boating in the Delta.</li> <li>B. 1-5</li> <li>C. 6-10</li> <li>D. 11-15</li> <li>E. 15-20</li> </ul> </li> <li>F. More than 20</li> <li>If Answer to 3 is A, then end survey.</li> </ul>
<ul> <li>4. What recreational boating activities do you usually undertake (select all that apply)?</li> <li>A. Fishing</li> <li>B. Wake boarding</li> <li>C. Water Skiing</li> <li>D. Cruising</li> <li>Visiting waterside bars and restaurants</li> <li>Hunting</li> <li>Other Yake</li> </ul>

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. E. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	<ul> <li>When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.</li> <li>Yes, Gas</li> <li>Yes, Food and beverages</li> <li>Yes, bait or fishing supplies</li> <li>Yes, other items</li> <li>No</li> </ul>
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) every one in Delta  2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5			
mph speed zones			
before reaching fast	"		
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water			
Heavy barge/boat			
traffic			
Excellent			
birdwatching			
Loud noise (traffic,	· · · · · · · · · · · · · · · · · · ·		
construction, etc.)			
High winds			The state of the s

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - Some reduction in frequency of boating activity in the Delta overall
    - C. Significant reduction in frequency of boating activity in the Delta overall
    - D. Increase in frequency of boating activity in the Delta overall.
    - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - D. I would often avoid the Delta by switching to boat at locations other than the Delta.

    E. Dwould always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water 16. along barge routes?
- This is not a concern for me. A.
- I would be somewhat likely to avoid areas where barges create muddy conditions. В.
- I would be very likely to avoid areas where barges create muddy conditions. C.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions. D. Ê.
  - I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- A. I have no reaction one way or the other.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.
- not am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
  - The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
  - The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
- F. I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
  - I would be much more likely to visit the Hood Supply Company.
    - The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
  - 9-) No
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not to give contact info:

or

Name:

Address:

Email:

Phone:

8

Survey taker number: 5
Hi, my name is I am a student at the University of California at Santa Cruz. I am working on this project as a part of my studies. The purpose of this survey is to analyze recreational boating activities in the Delta and to measure any changes in recreation and visitation that might occur during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California WaterFix project. Your responses will only be reported in aggregate. Can you take about fifteen minutes with me to complete our survey?  First, I would like to get some general information about your recreational boating activities.
1. Do you own a boat or do you rent a houseboat or other type of boat to go boating?  Own: Yes No
Rent: Yes No If No to both rent and own then end survey.
2. Which best describes your boat or boats (select all that apply)?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M.) Other: Care  3. Approximately how many times per year do you visit the Delta for recreational boating?
A. I do not go boating in the Delta.  B. 1–5 C. 6–10 D. 11–15 E. 15–20 More than 20
If Answer to 3 is A, then end survey.
<ul> <li>4. What recreational boating activities do you usually undertake (select all that apply)?</li> <li>A. Fishing</li> <li>B. Wake boarding</li> <li>C. Water Skiing</li> <li>D. Cruising</li> <li>E. Visiting waterside bars and restaurants</li> <li>F. Hunting</li> </ul>
9. Other Bridwatching

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area C. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
(	Away from the Delta in dry storage or at my residence.  B. Away from the Delta in a slip in the water
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	E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
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10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  Yes, Gas  Yes, Food and beverages  Yes, bait or fishing supplies  Yes, other items  E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) (2) (2) (2)
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
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before reaching fast water			
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and restaurants			
Turbid/muddy water			
Heavy barge/boat			
traffic			
Excellent			
birdwatching			
Loud noise (traffic, construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall
  - C. Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - [E] I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
  - E.) I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

I would be somewhat likely to avoid areas where barges create muddy conditions.

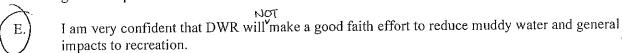
I would be very likely to avoid areas where barges create muddy conditions.

I would be somewhat likely to boat more often in areas where barges create muddy conditions.

E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
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- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
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- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.



Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often
- (F)

Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
  - I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the 20. intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. A.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina. C.
- I would be somewhat less likely to visit the Clarksburg Marina. D.
- I would be much less likely to visit the Clarksburg Marina.
- I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy 21. construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company. В.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company. D.
- I would be much less likely to visit the Hood Supply Company.
  - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times. A.

FΣ

- Yes 6-10 times В.
- Yes 11-20 times
- Yes more than 20 times No.
  - Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
  - It is somewhat likely that I will use the area. Α.
  - It is very likely that I will use the area. В.
  - It is somewhat unlikely that I will use the area. C.
    - It is very unlikely that I will use the area.
    - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not to give contact info:

Name: Fric Gough
Address: 195 Trinity Court
Rio Ursta
Phone: 209-329-4087

Email:

Survey taker number:			2
am working on this project boating activities in the De during construction of the p WaterFix project. Your res with me to complete our su	as a part of my studies. The pulta and to measure any changes proposed Twin Tunnel Project, sponses will only be reported in arvey?	at the University of California at Surpose of this survey is to analyze in recreation and visitation that sometimes called the BDCP or Canaggregate. Can you take about your recreational boating activities	e recreational might occur California fifteen minutes
<ol> <li>Do you own a boat or of Own: Yes</li> <li>Rent: Yes</li> <li>If No to both rent and own</li> </ol>	do you rent a houseboat or othe No No n then end survey.	r type of boat to go boating?	
2. Which best describes y	our boat or boats (select all tha	t apply)?	
M. Other:			
3. Approximately how m. A. I do not go boating B. 1-5 C. 6-10 D. 11-15 E. 15-20 F. More than 20  If Answer to 3 is A, the	in the Delta.	the Delta for recreational boating	<u>3</u> ?
	ing activities do you usually un	ndertake (select all that apply)?	
A. Fishing B. Wake boarding C. Water Skiing D. Cruising F. Visiting waterside F. Hunting G. Other	bars and restaurants		

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
ļ	A. West Delta around Antioch Suisun Marsh area  B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
4	A. Away from the Delta in dry storage or at my residence.  B. Away from the Delta in a slip in the water  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water.  E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D In the Delta in a slip in the water  E I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	<ul> <li>When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.</li> <li>A) Yes, Gas</li> <li>B) Yes, Food and beverages</li> <li>C) Yes, bait or fishing supplies</li> <li>D. Yes, other items</li> <li>E. No</li> </ul>
1	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) Pelta  2) Winny's  3) Gowl
	2) Wimpy's
	3) Courl

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5			
mph speed zones			
before reaching fast			
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water			
Heavy barge/boat			
traffic			
Excellent			
birdwatching			
Loud noise (traffic,			
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

pare	Yes	No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

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The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall
  - Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
  - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
  - C. I would be very likely to avoid areas where barges create muddy conditions.
  - D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
  - E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
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Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
  - I would be somewhat less likely to visit the Clarksburg area.
    - I would be much less likely to visit the Clarksburg area.
    - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
- F. I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- (A.)
  - Yes 1–5 times.
  - B. Yes 6–10 times
  - C. Yes 11–20 times
  - D. Yes more than 20 times
  - E. No.
  - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
  - A. It is somewhat likely that I will use the area.
  - B. It is very likely that I will use the area.
  - C. It is somewhat unlikely that I will use the area.
    - It is very unlikely that I will use the area.
      - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not to give contact info:

Name: Vin Rose

Address: 95 Oakpidge Way Rio Vista, CA 94571

Phone: (707) 507-5266 Email: james Rosa 550 Com cost. Net

8

Survey taker number:	16		(3)	
am working on this project boating activities in the De during construction of the WaterFix project. Your re- with me to complete our su	as a part of my studies. Ita and to measure any oproposed Twin Tunnel I sponses will only be reparter?	tudent at the University of Cal The purpose of this survey is changes in recreation and vision Project, sometimes called the ported in aggregate. Can your about your recreational boati	s to analyze rec tation that migh BDCP or Califo take about fiftee	reational t occur ornia
Own: Yes	No	or other type of boat to go bo	ating?	
Rent: Yes  If No to both rent and ow	No on then end survey.			
	our boat or boats (selec	t all that apply)?		
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Othe M. Other:	er non-motorized boat			
3. Approximately how m A. I do not go boating B. 1-5 C. 6-10 D. 11-15 E. 15-20 F. More than 20		ou visit the Delta for recreatio	nal boating?	
If Answer to 3 is A, th	ien end survey.			
A. Fishing B. Wake boarding C. Water Skiing D Cruising	ing activities do you uso	ually undertake (select all that	: apply)?	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
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6.	Where do you keep your boat during the summer
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7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
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10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  A Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
1 1	. If answer to 10 is A, B, C. or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1) Branded Island
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
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birdwatching	-		
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13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

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16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?

B.

This is not a concern for me.

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- Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
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- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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- E. I would be much less likely to visit the Clarksburg Marina.
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  - A. I would be somewhat more likely to visit the Hood Supply Company.
  - B. I would be much more likely to visit the Hood Supply Company.
  - C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
  - D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.

  Yes am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1-5 times. Yes 6-10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.

  I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

G. Other

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?		
	West Delta around Antioch Suisun Marsh area  B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area  C. South Delta around Discovery Bay area  D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area  Clarksburg, Hood, Walnut Grove, Locke area.  F. Stockton, Windmill Cove area  C. Other		
6.	Where do you keep your boat during the summer		
	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>I have a home in the Delta with an attached dock where I keep my boat</li> </ul>		
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?		
<ul><li>8.</li><li>9.</li></ul>	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat  If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?		
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  A. Yes, Gas  Yes, Food and beverages  Yes, bait or fishing supplies  D. Yes, other items  E. No		
11	Name of Marinas: 1) MANIVES		
	2)		
	3)		

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	· · · · · · · · · · · · · · · · · · ·		
Long or frequent 5			
mph speed zones	*Martin and American area and a second as a second		
before reaching fast			
water			
Nearby waterside bars		Lammar and "	
and restaurants			
Turbid/muddy water			
Heavy barge/boat			
traffic			
Excellent			
birdwatching			
Loud noise (traffic,	- Andrews of the second		
construction, etc.)		and the second s	
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall
  - Significant reduction in frequency of boating activity in the Delta overall
    - D. Increase in frequency of boating activity in the Delta overall.
    - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.

    Delta by switching to boat at locations other than the Delta.
  - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- C. I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- (E.) I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.

I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

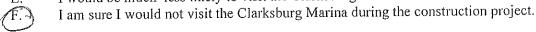
Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
  - I would be somewhat less likely to visit the Clarksburg area.
  - I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.



- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- I would be somewhat less likely to visit the Hood Supply Company.

  I would be much less likely to visit the Hood Supply Company.
  - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- E) No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
  - It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey in here are changes to the proposed project later?	f
Prefer not to give contact info: or	
Name:	
Address:	
Phone:	
Email:	

Survey taker number: 6(5)	(5-Ce
Hi, my name is I am a student at a am working on this project as a part of my studies. The pur boating activities in the Delta and to measure any changes is during construction of the proposed Twin Tunnel Project, so WaterFix project. Your responses will only be reported in a with me to complete our survey?  First, I would like to get some general information about you	n recreation and visitation that might occur ometimes called the BDCP or California aggregate. Can you take about fifteen minutes our recreational boating activities.
1. Do you own a boat or do you rent a houseboat or other	type of boat to go boating?
Own: Yes No	
If No to both rent and own then end survey.	
2. Which best describes your boat or boats (select all that	apply)?
B. Wakeboard boat C. Ski boat	
D. Runabout E. Pontoon boat	
F. House boat G. Day boat	
H. Jet Boat	
I. Big Cat	
J. Performance boat	
<ul><li>K. Sail boat</li><li>L. Kayak/Canoe/Other non-motorized boat</li></ul>	
M. Other:	
<ul><li>3. Approximately how many times per year do you visit the A. I do not go boating in the Delta.</li><li>B. 1-5</li></ul>	ne Delta for recreational boating?
C. 6–10	
(D) 11-15 E 15-20	
E. 15–20 F. More than 20	
If Answer to 3 is A, then end survey.	
4. What recreational boating activities do you usually und	ertake (select all that apply)?
A. Fishing	
B. Wake boarding	
C. Water Skiing D Cruising	
E. Visiting waterside bars and restaurants	
F. Hunting	
G. Other	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area  B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area  C. South Delta around Discovery Bay area  D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area  E. Clarksburg, Hood, Walnut Grove, Locke area.  F. Stockton, Windmill Cove area  G. Other
6.	Where do you keep your boat during the summer
(	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
9.	A. Away from the Delta in a slip in the water  B Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  I have a home in the Delta with an attached dock where I keep my boat
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  A Yes, Gas Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
1	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1) Jelfa Manha  2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	*Assertation of the second of		
Long or frequent 5	and the same of th		
mph speed zones	A THE COMMENT OF THE ASS.		
before reaching fast			
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water	**************************************		
Heavy barge/boat			
traffic			
Excellent			
birdwatching			
Loud noise (traffic,			
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

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There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

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Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
- B. Some reduction in frequency of boating activity in the Delta overall

  C Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
- A. No change in location of my boating activity.

  B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
  - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- C. I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

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DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

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- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
  - I would be much more likely to visit the Clarksburg area.
  - The construction would not affect the likelihood of me visiting the Clarksburg area.
- 1 would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.

I would be much more likely to visit the Clarksburg Marina.

The construction would not effect the likelihood of me visiting the Clarksburg Marina.

D. I would be somewhat less likely to visit the Clarksburg Marina.

E. I would be much less likely to visit the Clarksburg Marina.

F. I am sure I would not visit the Clarksburg Marina during the construction project.

- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.

B. I would be much more likely to visit the Hood Supply Company.

The construction would not effect the likelihood of me visiting the Hood Supply Company.

I would be somewhat less likely to visit the Hood Supply Company.

E. I would be much less likely to visit the Hood Supply Company.

F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- (B) Yes 6–10 times
  - Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not to give contact info:

Name: Jeff Ceoper Address: 16659 Challe Hill Lave 3, 94591

Phone:

Email:

G. Other \_\_\_\_

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	West Delta around Antioch Suisun Marsh area  North Delta around Rio Vista, Walnut Grove, Steamboat Slough area  South Delta around Discovery Bay area  Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area  Clarksburg, Hood, Walnut Grove, Locke area.  Stockton, Windmill Cove area  G. Other
6.	Where do you keep your boat during the summer
/	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>
	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
1.	
8. ( 9.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat  If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  A. Yes, Gas  Yes, Food and beverages  Yes, bait or fishing supplies  Yes, other items  E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1) Delta Marina
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5 mph speed zones before reaching fast water			
Nearby waterside bars and restaurants			
Turbid/muddy water			
Heavy barge/boat traffic			
Excellent birdwatching			
Loud noise (traffic, construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
    - B) I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
    - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
    - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
    - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- C. I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.



I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.



I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
    - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
  - I would be much more likely to visit the Clarksburg area.
    - The construction would not affect the likelihood of me visiting the Clarksburg area.
      - I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
  - The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
- F. I am sure I would not visit the Clarksburg Marina during the construction project.
- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- The construction would not effect the likelihood of me visiting the Hood Supply Company.
  - D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?



Yes 1-5 times.

- Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.

  I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not to give contact info:

Name: ISA Rodrigged

Address: 1006 Bran Ct.

SUISUR CITY, CH. 94555

Phone: 707-626-4840

Email: 1150-0010 live.com.

Survey taker number: 0 Hi, my name is . I am a student at the University of California at Santa Cruz. I am working on this project as a part of my studies. The purpose of this survey is to analyze recreational boating activities in the Delta and to measure any changes in recreation and visitation that might occur during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California WaterFix project. Your responses will only be reported in aggregate. Can you take about fifteen minutes with me to complete our survey? First, I would like to get some general information about your recreational boating activities. 1. Do you own a boat or do you rent a houseboat or other type of boat to go boating? Own: Yes No Rent: If No to both rent and own then end survey. 2. Which best describes your boat or boats (select all that apply)? A. Cabin cruiser Wakeboard boat Ski boat Runabout E) Pontoon boat House boat Day boat H) Jet Boat Big Cat Performance boat K.\ Sail boat Kayak/Canoe/Other non-motorized boat M. Other: 3. Approximately how many times per year do you visit the Delta for recreational boating? A. I do not go boating in the Delta. B. 1-5 C. 6-10 D. 11-15 E. 15-20 F) More than 20 If Answer to 3 is A, then end survey. What recreational boating activities do you usually undertake (select all that apply)? A. Fishing Wake boarding Water Skiing Cruising Visiting waterside bars and restaurants Hunting

G. Other

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. J. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
!	Away from the Delta in dry storage or at my residence.  Away from the Delta in a slip in the water  In the Delta in dry storage or at my residence out of the water  In the Delta in a slip in the water  I have a home in the Delta with an attached dock where I keep my boat
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before reaching fast			
water	V		
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and restaurants	\		
Turbid/muddy water	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
Heavy barge/boat			
traffic			
Excellent	✓		
birdwatching	<del>                                     </del>		
Loud noise (traffic,	√ /		
construction, etc.)	<b>│</b>		
High winds			1

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

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- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
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- I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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- D. I would be somewhat less likely to visit the Hood Supply Company.
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- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Hi, my name is I am a student at the University of California at Santa Cruz. I
am working on this project as a part of my studies. The purpose of this survey is to analyze recreational
boating activities in the Delta and to measure any changes in recreation and visitation that might occur
during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California
WaterFix project. Your responses will only be reported in aggregate. Can you take about fifteen minute
with me to complete our survey?
First, I would like to get some general information about your recreational boating activities.
1. Do you own a boat or do you rent a houseboat or other type of boat to go boating?
Own: Yes- No
Rent: Yes No
If No to both rent and own then end survey.
2. Which best describes your boat or boats (select all that apply)?
2. Which best describes your boat or boats (select all that apply)?
A. Cabin cruiser
B. Wakeboard boat
C., Ski boat
(D. Runabout
E. Pontoon boat
F. House boat
G. Day boat
H. Jet Boat
I. Big Cat
J. Performance boat
K Sail boat
L. Kayak/Canoe/Other non-motorized boat
M. Other:
3. Approximately how many times per year do you visit the Delta for recreational boating?
A. I do not go boating in the Delta.  B. 1–5
B. 1–3 C6–10
DT D-15
E. 15–20
F. More than 20
1. Word than 20
If Answer to 3 is A, then end survey.
4. What recreational boating activities do you usually undertake (select all that apply)?
A. Fishing
B. Wake boarding
C. Water Skiing D. Cruising
E. Visiting waterside bars and restaurants
F. Hunting
(G.) Other Place
7 700

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
Ş	A West Delta around Antioch Suisun Marsh area  B North Delta around Rio Vista, Walnut Grove, Steamboat Slough area  South Delta around Discovery Bay area  C Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area  C Clarksburg, Hood, Walnut Grove, Locke area.  F Stockton, Windmill Cove area  G. Other
6.	Where do you keep your boat during the summer
Ü	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  A. Yes, Gas  B. Yes, Food and beverages  C. Yes, bait or fishing supplies  D. Yes, other items  E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) Dita Maile
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5			
mph speed zones	/		
before reaching fast	•		
water			
Nearby waterside bars			
and restaurants	- Aller - Alle		
Turbid/muddy water	( accommodition of the contraction of the contracti		
Heavy barge/boat			
traffic			
Excellent			
birdwatching			
Loud noise (traffic,			
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B Some reduction in frequency of boating activity in the Delta overall C. Significant reduction in frequency of boating activity in the Delta overall
    - D. Increase in frequency of boating activity in the Delta overall.
    - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - I would often avoid the Delta by switching to boat at locations other than the Delta. would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions. I would be very likely to avoid areas where barges create muddy conditions.
  - D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
  - E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
- Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
  - I would be much less likely to visit the Clarksburg area.
    - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
  - I am sure I would not visit the Clarksburg Marina during the construction project.
- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times. Yes 6–10 times
  - C. Yes 11–20 times
  - D. Yes more than 20 times
  - E. No.
  - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
  - A. It is somewhat likely that I will use the area.
  - B. It is very likely that I will use the area.
  - C. It is somewhat unlikely that I will use the area.
    - It is very unlikely that I will use the area.
      - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

G. Other \_\_\_\_

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
(	A. West Delta around Antioch Suisun Marsh area  P. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	A. Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	<ul> <li>When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.</li> <li>Yes, Gas</li> <li>Yes, Food and beverages</li> <li>Yes, bait or fishing supplies</li> <li>Yes, other items</li> <li>No</li> </ul>
1	I. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) Wlywey
	2)
	3)

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5			
mph speed zones			
before reaching fast			
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water			
Heavy barge/boat			
traffic			
Excellent			
birdwatching			
Loud noise (traffic,			
construction, etc.)			
High winds		<u> </u>	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

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There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?



A. No change in frequency of boating activity in the Delta overall

B) Some reduction in frequency of boating activity in the Delta overall

C. Significant reduction in frequency of boating activity in the Delta overall

D. Increase in frequency of boating activity in the Delta overall.

E. I will stop boating in the Delta altogether.

15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?

A. No change in location of my boating activity.

B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.

C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta. D I would often avoid the Delta by switching to boat at locations other than the Delta. E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?



This is not a concern for me.

I would be somewhat likely to avoid areas where barges create muddy conditions.

C. I would be very likely to avoid areas where barges create muddy conditions.

D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

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- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.



I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
    - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
    - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much
    - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
    - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
    - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

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- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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- B. I would be much more likely to visit the Clarksburg Marina.
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- D. I would be somewhat less likely to visit the Clarksburg Marina.
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- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
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- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.

Lien

F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- R. Yes 6–10 times
- Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
  - It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:		10-2
am working on this project boating activities in the Del during construction of the p WaterFix project. Your res with me to complete our su First, I would like to get so	as a part of my studies. It and to measure any claroposed Twin Tunnel Paperses will only be reported.  Twey?  The general information and the second informa	Ident at the University of California at Santa Cruz. I The purpose of this survey is to analyze recreational nanges in recreation and visitation that might occur roject, sometimes called the BDCP or California orted in aggregate. Can you take about fifteen minutes about your recreational boating activities.
1. Do you own a boat or of Own: Yes Rent: Yes If No to both rent and ow	No No	or other type of boat to go boating?
	our boat or boats (select	all that apply)?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Othe M. Other:	) 100 dt any times per year do yo	ou visit the Delta for recreational boating?
<ul><li>E. 15–20</li><li>F. More than 20</li></ul>		
If Answer to 3 is A, th	nen end survey.	
(A.) Fishing B. Wake boarding C. Water Skiing Cruising	ing activities do you usu	nally undertake (select all that apply)?

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
(	A. West Delta around Antioch Suisun Marsh area  B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	A. Away from the Delta in dry storage or at my residence.  B. Away from the Delta in a slip in the water  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, on other items from Delta marinas? Circle all that apply.  Yes, Gas  Yes, Food and beverages  Yes, bait or fishing supplies  Yes, other items  No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1)
	3)

Condition	More/Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5 mph speed zones before reaching fast water		X	
Nearby waterside bars and restaurants	X		
Turbid/muddy water Heavy barge/boat traffic			X
Excellent birdwatching	X		
Loud noise (traffic, construction, etc.)			X
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted

at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

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The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall C. Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - I would occasionally avoid the Delta by switching to boat at locations other than the Delta.

    I would often avoid the Delta by switching to boat at locations other than the Delta.
  - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B) I would be somewhat likely to avoid areas where barges create muddy conditions.
- C. I would be very likely to avoid areas where barges create muddy conditions.
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DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
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- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- (E.)

I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
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This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
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  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?



Yes 1–5 times.

- P. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
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Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer no	to give contact info:		
or	H	\	
Name:	Susan Korner	. 11	956/07
Address:	9604 Golden I)rive	Ovange Ulle	1000
Phone:	[916] 989 JS TA		
Email:	SJK Rovner Dhot Mail. com		

Survey taker number: 0	(0)
survey taker instituori	
am working on this project as a part of my stuboating activities in the Delta and to measure during construction of the proposed Twin TurwaterFix project. Your responses will only by with me to complete our survey?	m a student at the University of California at Santa Cruz. Indies. The purpose of this survey is to analyze recreational any changes in recreation and visitation that might occur nnel Project, sometimes called the BDCP or California be reported in aggregate. Can you take about fifteen minutes ation about your recreational boating activities.
1. Do you own a boat or do you rent a house	eboat or other type of boat to go boating?
Own: Yes No	
Rent: Yes No If No to both rent and own then end survey	7.
	•
2. Which best describes your boat or boats (	select all that apply)?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized b M. Other:	oat
	do you visit the Delta for recreational boating?
<ul> <li>4. What recreational boating activities do you</li> <li>A. Fishing</li> <li>B. Wake boarding</li> <li>C. Water Skiing</li> <li>D. Cruising</li> <li>E. Visiting waterside bars and restaurant</li> <li>F. Hunting</li> <li>G. Other</li> </ul>	ts

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A West Delta around Antioch Suisun Marsh area  B North Delta around Rio Vista, Walnut Grove, Steamboat Slough area  South Delta around Discovery Bay area  C Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area  C Clarksburg, Hood, Walnut Grove, Locke area.  F. Stockton, Windmill Cove area  G. Other
6.	Where do you keep your boat during the summer
	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10.	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11.	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) 10 m 17 vs  2) Marina West  3) Rio Vista

Condition	More Likely	No Change	Less Likely
Excellent fishing	X .		
Long or frequent 5 mph speed zones before reaching fast water		X	
Nearby waterside bars and restaurants	X		
Turbid/muddy water			<u> </u>
Heavy barge/boat traffic			X
Excellent birdwatching	X'		
Loud noise (traffic, construction, etc.)			$\times$
High winds			$\perp$

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



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- B. Yes 6–10 times
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- Yes more than 20 times No.
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**F**. Hunting G. Other \_\_\_\_

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6.	Away from the B. Away from the C. In the Delta in a D. In the Delta in a E. I have a home i	n the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A	or B, what is the zip code where you keep your boat during summer?
8.	A. Away from the B. Away from the C. In the Delta in D. In the Delta in	your boat in the off season?  Delta in a slip in the water  Delta in dry storage or at my residence  dry storage or at my residence out of the water  a slip in the water  n the Delta with an attached dock where I keep my boat
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10		
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	Name of Marinas:	1)
		2)
		3)

Condition	More Likely	No Change	Less Likely
Excellent fishing		<u> </u>	
Long or frequent 5			
mph speed zones		X	
before reaching fast			
water	/		
Nearby waterside bars	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
and restaurants			
Turbid/muddy water			
Heavy barge/boat		$\perp$	
traffic			
Excellent			
birdwatching			
Loud noise (traffic,			l X
construction, etc.)			
High winds			<u> </u>

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Yes) No

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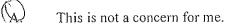
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- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
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- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.

I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
    - Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
- F I am sure I would not visit the Clarksburg Marina during the construction project.
- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- (b) I would be somewhat less likely to visit the Hood Supply Company.
  - E. I would be much less likely to visit the Hood Supply Company.
  - F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11-20 times
- Yes more than 20 times
  E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:	(0)
Hi, my name is I am a student at the Universit am working on this project as a part of my studies. The purpose of this boating activities in the Delta and to measure any changes in recreation during construction of the proposed Twin Tunnel Project, sometimes call WaterFix project. Your responses will only be reported in aggregate. Owith me to complete our survey?  First, I would like to get some general information about your recreation.  1. Do you own a boat or do you rent a houseboat or other type of boat Own:  Yes  No	survey is to analyze recreational and visitation that might occur lled the BDCP or California Can you take about fifteen minutes nal boating activities.
Rent: Yes No If No to both rent and own then end survey.	
2. Which best describes your boat or boats (select all that apply)?	
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other: Out how A body body  3. Approximately how many times per year do you visit the Delta for the content of the conten	recreational boating?
A. I do not go boating in the Delta.  B. 1–5  C. 6–10  D. 11–15  E. 15–20  F. More than 20	
If Answer to 3 is A, then end survey.	
<ul> <li>4. What recreational boating activities do you usually undertake (select A Fishing</li> <li>B. Wake boarding</li> <li>C. Water Skiing</li> <li>B. Cruising</li> <li>Visiting waterside bars and restaurants</li> <li>Hunting</li> <li>G. Other</li> </ul>	ct all that apply)?
G. Other	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?				
	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other				
6.	Where do you keep your boat during the summer				
	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>				
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?				
8.	<ul> <li>Where do you keep your boat in the off season?</li> <li>A. Away from the Delta in a slip in the water</li> <li>B. Away from the Delta in dry storage or at my residence</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>				
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?				
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  Yes, Gas  Yes, Food and beverages  Yes, bait or fishing supplies  Yes, other items  E. No				
1	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?				
	Name of Marinas: 1)				
	2)				
	3)				

Condition	More Likely	No Change	Less Likely
Excellent fishing	$X_{\underline{i}}$		
Long or frequent 5			
mph speed zones			
before reaching fast			
water	/	\	
Nearby waterside bars	\ \ \		
and restaurants			
Turbid/muddy water			X
Heavy barge/boat			1
traffic		X	
Excellent		,	
birdwatching			
Loud noise (traffic,	,		
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C) I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
  - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B<sub>1</sub> I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

I would be somewhat likely to boat more often in areas where barges create muddy conditions.

E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.



I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area. E. I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
  - I would be much less likely to visit the Clarksburg Marina.
    - I am sure I would not visit the Clarksburg Marina during the construction project.
- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- F.) I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?



- Yes 1-5 times.
- Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Surve	ey taker number:	<u> </u>		10-6
am we boating during Water with r	orking on this project orgactivities in the D orgactivities on the D orgactivities of the orgactivity	et as a part of my street a and to measure proposed Twin Tuesponses will only burvey?	m a student at the University of Calination. The purpose of this survey is any changes in recreation and visita nanel Project, sometimes called the B be reported in aggregate. Can you tanation about your recreational boating	to analyze recreational ation that might occur DCP or California about fifteen minutes
Own: Rent:	o you own a boat or Yes Yes to both rent and o	No No	seboat or other type of boat to go boa	ting?
2. W	hich best describes	your boat or boats	(select all that apply)?	
BCDEE GH I. J. K L	. Sail boat . Kayak/Canoe/Otl I. Other: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	ner non-motorized b		
A B C	. I do not go boating		r do you visit the Delta for recreation	al boating?
If	Answer to 3 is A,	then end survey.		
A B C E F	.) Fishing Wake boarding Water Skiing Cruising . Visiting watersid	ating activities do y e bars and restaurar	ou usually undertake (select all that a	apply)?

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area  B North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area (D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area (E.) Clarksburg, Hood, Walnut Grove, Locke area. (F.) Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	A. Away from the Delta in dry storage or at my residence.  B. Away from the Delta in a slip in the water  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  Yes, Gas  Yes, Food and beverages  Yes, bait or fishing supplies  Yes, other items  No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1)
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
Long or frequent 5 mph speed zones before reaching fast water			X
Nearby waterside bars and restaurants		X	
Turbid/muddy water		<u> </u>	
Heavy barge/boat traffic		X	
Excellent birdwatching		X	
Loud noise (traffic, construction, etc.)			X
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

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Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall Significant reduction in frequency of boating activity in the Delta overall
  - Significant reduction in frequency of boating activity in the Delta overall.

    Delta altogether.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - I would occasionally avoid the Delta by switching to boat at locations other than the Delta. D.) I would often avoid the Delta by switching to boat at locations other than the Delta.
  - I would always avoid the Delta by switching to boat at locations other than the Delta.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

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- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.



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  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
    - Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
    - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.

  E. I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
  - I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- (F.) I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- Yes 1–5 times. Yes 6–10 times
- C. Yes 11-20 times
- D. Yes more than 20 times
- E. No.

F.

- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

G. Other

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	(A) West Delta around Antioch Suisun Marsh area (B) North Delta around Rio Vista, Walnut Grove, Steamboat Slough area
	C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area.
	F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	A. Away from the Delta in dry storage or at my residence.
	B. Away from the Delta in a slip in the water  G. In the Delta in dry storage or at my residence out of the water
	(D). In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water
	B., Away from the Delta in dry storage or at my residence
	C. In the Delta in dry storage or at my residence out of the water  (D) In the Delta in a slip in the water
	E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	). When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.
	(A). Yes, Gas
	Yes, Food and beverages Yes, bait or fishing supplies
	D. Yes, other items
	E. No
1	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) Delta Marina
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5			
mph speed zones			
before reaching fast			\(\lambda\)
water			
Nearby waterside bars			
and restaurants	X		
Turbid/muddy water			X
Heavy barge/boat			V
traffic			
Excellent	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
birdwatching	<u> </u>		
Loud noise (traffic,	,		X
construction, etc.)			/ \
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall

    B. Some reduction in frequency of boating activity in the Delta overall
  - C. Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - No change in location of my boating activity.

    I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
    - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
    - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
    - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
  - I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E.) Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
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- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11-20 times
- D. Yes more than 20 times
- E.\ No
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

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Survey taker number:		, and the second
am working on this project boating activities in the Deduring construction of the WaterFix project. Your rewith me to complete our s First, I would like to get so	t as a part of my studion of the and to measure and proposed Twin Tunnersponses will only be rurvey?	student at the University of California at Santa Cruz. I es. The purpose of this survey is to analyze recreational y changes in recreation and visitation that might occur of Project, sometimes called the BDCP or California eported in aggregate. Can you take about fifteen minutes on about your recreational boating activities.
Rent: Yes	No	
If No to both rent and ov	vn then end survey.	
2. Which best describes	your boat or boats (sel	ect all that apply)?
M. Other:	er non-motorized boat AG DO d+ nany times per year do	you visit the Delta for recreational boating?
F. More than 20		
If Answer to 3 is A, t	hen end survey.	
Fishing B. Wake boarding G. Water Skiing Cruising	e bars and restaurants	usually undertake (select all that apply)?

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
(	Away from the Delta in dry storage or at my residence.  B. Away from the Delta in a slip in the water  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  A) Yes, Gas  Yes, Food and beverages Yes, bait or fishing supplies Yes, other items E. No
11.	If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas:  2)  1)  1)  1)  1)  1)  1)  1)  1)  1)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5			
mph speed zones			
before reaching fast			
water			
Nearby waterside bars		$\downarrow$	
and restaurants			
Turbid/muddy water			
Heavy barge/boat			X
traffic			/ \
Excellent			,
birdwatching			
Loud noise (traffic,	4		
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.

    D. I would often avoid the Delta by switching to boat at locations other than the Delta.

    E. I would always avoid the Delta by switching to boat at locations other than the Delta.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

I would be somewhat likely to avoid areas where barges create muddy conditions.

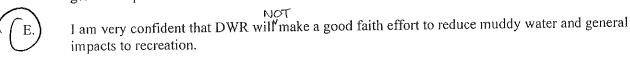
I would be very likely to avoid areas where barges create muddy conditions.

D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

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  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
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Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

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- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
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- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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    - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- (A)

F.

- Yes 1-5 times.
- Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area  B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	A. Away from the Delta in a slip in the water  B Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  Yes, Gas  Yes, Food and beverages  C. Yes, bait or fishing supplies  D. Yes, other items  E. No
11	I. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1)
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		, , , , , , , , , , , , , , , , , , ,
Long or frequent 5			
mph speed zones			
before reaching fast			/ \
water			
Nearby waterside bars	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
and restaurants			<del> </del>
Turbid/muddy water			
Heavy barge/boat			
traffic			1
Excellent	X		
birdwatching	(\		
Loud noise (traffic,			X
construction, etc.)			/ }
High winds			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall C. Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A No change in location of my boating activity.
  - would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
    - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
    - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
    - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
  - I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.

I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

- Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. \ I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the 20. intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. A.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina. C.
- I would be somewhat less likely to visit the Clarksburg Marina. D.
- I would be much less likely to visit the Clarksburg Marina.
  - I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy 21. construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company. В.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company. D.
- I would be much less likely to visit the Hood Supply Company. Ε. (F)
  - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times. Α.
- Yes 6-10 times Yes 11–20 times
- Yes more than 20 times
- No. E.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. A.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area. C.
- It is very unlikely that I will use the area. D.
- I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:	t t
Hi, my name is I am a student at the am working on this project as a part of my studies. The purpos boating activities in the Delta and to measure any changes in reduring construction of the proposed Twin Tunnel Project, some WaterFix project. Your responses will only be reported in agg with me to complete our survey?  First, I would like to get some general information about your	se of this survey is to analyze recreational ecreation and visitation that might occur etimes called the BDCP or California gregate. Can you take about fifteen minutes
Do you own a boat or do you rent a houseboat or other typ Own: Yes  No	e of boat to go boating?
Rent: Yes No	
If No to both rent and own then end survey.	·
	F. NO.
2. Which best describes your boat or boats (select all that app	bly)?
A. Cabin cruiser  B. Wakeboard boat  C. Ski boat  D. Runabout  E. Pontoon boat  F. House boat  G. Day boat  H. Jet Boat  I. Big Cat  J. Performance boat  K. Sail boat  L. Kayak/Canoe/Other non-motorized boat  M. Other:	Delta for recreational boating?
A. I do not go boating in the Delta.  B. 1–5  C. 6–10  D. 11–15  (E. 15–20  More than 20	
If Answer to 3 is A, then end survey.	
4. What recreational boating activities do you usually undert Fishing Wake boarding Water Skiing Cruising Cruising Visiting waterside bars and restaurants F. Hunting G. Other	ake (select all that apply)?
G. Other	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area  B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area  C. South Delta around Discovery Bay area  D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area  E. Clarksburg, Hood, Walnut Grove, Locke area.  F. Stockton, Windmill Cove area  G. Other
6.	Where do you keep your boat during the summer
	A. Away from the Delta in dry storage or at my residence.  B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A way from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	No. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  Yes, Gas Yes, Food and beverages Yes, bait or fishing supplies D. Yes, other items E. No
1	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1)
	3) Sherman I sland

Condition	More Likely	No Change	Less Likely
Excellent fishing	_ <u> </u>		
Long or frequent 5 mph speed zones before reaching fast water		X	
Nearby waterside bars and restaurants		X	
Turbid/muddy water			
Heavy barge/boat traffic			X
Excellent birdwatching		X	
Loud noise (traffic, construction, etc.)			X
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

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There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall

    Some reduction in frequency of boating activity in the Delta overall
  - C. Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
  - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- (d. I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.

I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
    - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
  - I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times. Yes 6–10 times
  - Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not to give contact info:

Name: SoM Lion Won Address: 8:23 eLM way 94571 Phone: (707) 374-6237 Email: Styon & frontier not. Not

Survey taker number:_	(0)		10-12
am working on this proje boating activities in the I during construction of the WaterFix project. Your with me to complete our	ct as a part of my studion of the proposed Twin Tunner or sponses will only be responses?	a student at the University of es. The purpose of this surv by changes in recreation and el Project, sometimes called reported in aggregate. Can y on about your recreational b	ey is to analyze recreational visitation that might occur the BDCP or California rou take about fifteen minutes
1. Do you own a boat o Own: Yes Rent: Yes If No to both rent and o	No No	oat or other type of boat to go	o boating?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boa K. Sail boat	t her non-motorized boar		
3. Approximately how A. I do not go boatin B. 1–5 C. 6–10 D. 11–15 E. 15–20 F. More than 20 If Answer to 3 is A,	g in the Delta.	you visit the Delta for recre	ational boating?

4. Wh	at recreational boating activities do you usually undertake (select all that apply)?
(A.	Fishing
B	Wake boarding
	Water Skiing
	Cruising Cruising
(E/	Visiting waterside bars and restaurants
F.	Hunting
G.	Other

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
•	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
1	A. Away from the Delta in dry storage or at my residence.  B. Away from the Delta in a slip in the water  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  Yes, Gas  Yes, Food and beverages  Yes, bait or fishing supplies  D. Yes, other items  E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1) 100 100 100 100 100 100 100 100 100
	3)

Condition	Morę Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5 mph speed zones before reaching fast water			X
Nearby waterside bars and restaurants	×		
Turbid/muddy water			
Heavy barge/boat traffic			X
Excellent birdwatching	X		
Loud noise (traffic, construction, etc.)			$\sim$
High winds		$\perp \times$	, ,

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

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There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall
  - C. Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.

    (E. Dvill stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - D. I would often avoid the Delta by switching to boat at locations other than the Delta.

    E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

I would be somewhat likely to boat more often in areas where barges create muddy conditions.

E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.

I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- By I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
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- E. I would be much less likely to visit the Hood Supply Company.
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Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- Yes 1–5 times. Yes 6–10 times

F.,

- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
  - It is very unlikely that I will use the area.I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Surve	y taker number:			10-13
am wo boatin during Water with n	orking on this project g activities in the De construction of the Fix project. Your re ne to complete our so	t as a part of my stuelta and to measure proposed Twin Tuesponses will only burvey?	m a student at the University of Cudies. The purpose of this survey any changes in recreation and vinnel Project, sometimes called the reported in aggregate. Can your recreational boats.	y is to analyze recreational isitation that might occur are BDCP or California but take about fifteen minutes
Own: Rent:		No No	eboat or other type of boat to go	boating?
CA.B. C.D. E. F. G.H. I. J. K.L. M.	Cabin cruiser Wakeboard boat Ski boat Runabout Pontoon boat House boat Day boat Jet Boat Big Cat Performance boat Sail boat Kayak/Canoe/Oth	er non-motorized b		itional boating?
A B C D F.	. I do not go boating . 1–5 . 6–10 . 11–15 . 15–20	in the Delta.	do you visit the Delta for recrea	tional boating?
4. AB COLLEGE G	Fishing Wake boarding Water Skiing Cruising	ting activities do y	ou usually undertake (select all t	hat apply)?

5.		ing areas of the Delta best describes the areas of the Delta that you use for these es (circle all that apply)?
(	B. North Delta arou C. South Delta arou D. Central Delta aro	
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		2)
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Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5	1		
mph speed zones		M	
before reaching fast			
water		1	
Nearby waterside bars			
and restaurants			
Turbid/muddy water			+->
Heavy barge/boat			
traffic			
Excellent	$\searrow$		
birdwatching	/)		
Loud noise (traffic,			
construction, etc.)		<del>  -v</del>	
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13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

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- A. Yes 1–5 times.
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- 6. Yes 11–20 times
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- É. No.
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- C. It is somewhat unlikely that I will use the area.
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Name:
Address:
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5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
{	West Delta around Antioch Suisun Marsh area  B North Delta around Rio Vista, Walnut Grove, Steamboat Slough area
	C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area.
	F. Stockton, Windmill Cove area G. Other
6.	to deducing the common
	A. Away from the Delta in dry storage or at my residence.
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9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	O. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.
	Yes, Gas
	Yes, Food and beverages  (C) Yes, bait or fishing supplies
	D) Yes, other items
	E. No
1	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
1	on the Maria ()
	Name of Marinas: 1) 10112 MWIII
	2) JMAUNTT
	3)

Condition	More Likely	No Change	Less Likely
Excellent fishing		X	
Long or frequent 5			
mph speed zones			
before reaching fast			
water			<u>'</u>
Nearby waterside bars		\ \\	
and restaurants		X	
Turbid/muddy water			X
Heavy barge/boat			
traffic			
Excellent		~	
birdwatching			
Loud noise (traffic,		'	<b>/</b>
construction, etc.)			
High winds	X		

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?



A. No change in frequency of boating activity in the Delta overall

(B) Some reduction in frequency of boating activity in the Delta overall

C. Significant reduction in frequency of boating activity in the Delta overall

- D. Increase in frequency of boating activity in the Delta overall.
- E. I will stop boating in the Delta altogether.

15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?

(A.) No change in location of my boating activity.

B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.

- C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
- D. I would often avoid the Delta by switching to boat at locations other than the Delta.
- E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- (c) I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- E. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?

A) Construction vehicles and bridge openings will not affect my use of the Delta for recreation.

- B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
- C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
- D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
- E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
- F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
  - I would be much less likely to visit the Clarksburg Marina.
    - I am sure I would not visit the Clarksburg Marina during the construction project.
- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E I would be much less likely to visit the Hood Supply Company.
  - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.

  I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:()	10-13
am working on this project as a boating activities in the Delta a during construction of the prop WaterFix project. Your respon with me to complete our survey	I am a student at the University of California at Santa Cruz. I part of my studies. The purpose of this survey is to analyze recreational nd to measure any changes in recreation and visitation that might occur used Twin Tunnel Project, sometimes called the BDCP or California ses will only be reported in aggregate. Can you take about fifteen minutes?
1. Do you own a boat or do yo Own: Yes Rent: Yes  If No to both rent and own the	ou rent a houseboat or other type of boat to go boating? No No en end survey.
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other no	
3. Approximately how many A. I do not go boating in the B. 1-5 C. 6-10 D. 11-15 E. 15-20 F. More than 20  If Answer to 3 is A, then a	
<ul> <li>4. What recreational boating at Fishing</li> <li>B. Wake boarding</li> <li>C. Water Skiing</li> <li>D. Cruising</li> <li>E. Visiting waterside bars</li> <li>F. Hunting</li> <li>G. Other</li> </ul>	activities do you usually undertake (select all that apply)?  and restaurants

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?				
	A. West Delta around Antioch Suisun Marsh area  B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other				
6.	Where do you keep your boat during the summer				
	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>				
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?				
8.	<ul> <li>Where do you keep your boat in the off season?</li> <li>A. Away from the Delta in a slip in the water</li> <li>B. Away from the Delta in dry storage or at my residence</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>				
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?				
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  A. Yes, Gas  B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No				
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1) Delta Mount  2)				
	3)				

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5			
mph speed zones		X	
before reaching fast			
water			
Nearby waterside bars		X	
and restaurants			
Turbid/muddy water			
Heavy barge/boat			$\mathbf{X}^{\prime}$
traffic			/}
Excellent		$\bigvee'$	·
birdwatching			
Loud noise (traffic,			X
construction, etc.)			- /-
High winds			<u> </u>

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall
  - C. Significant reduction in frequency of boating activity in the Delta overall
  - D Increase in frequency of boating activity in the Delta overall. E) I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
- (A). No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
  - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
  I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
  - C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
  - D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
  - E. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
  - I would be much less likely to visit the Clarksburg area.

    I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
- I am sure I would not visit the Clarksburg Marina during the construction project.

  The Hood Supply Company is a bar and grill located next to the intake construction sit
- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- F.) I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- (B)

Yes 1-5 times.

- Yes 6-10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
  - It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number: ()
Hi, my name is I am a student at the University of California at Santa Cruz. I am working on this project as a part of my studies. The purpose of this survey is to analyze recreational boating activities in the Delta and to measure any changes in recreation and visitation that might occur during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California WaterFix project. Your responses will only be reported in aggregate. Can you take about fifteen minutes with me to complete our survey?  First, I would like to get some general information about your recreational boating activities.  1. Do yourown a boat or do you rent a houseboat or other type of boat to go boating?
Own: Yes No
If No to both rent and own then end survey.
2. Which best describes your boat or boats (select all that apply)?  A Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other:
<ul> <li>3. Approximately how many times per year do you visit the Delta for recreational boating? <ul> <li>A. I do not go boating in the Delta.</li> <li>B. 1-5</li> <li>C. 6-10</li> <li>D. 11-15</li> <li>E. 15-20</li> <li>F. More than 20</li> </ul> </li> <li>If Answer to 3 is A, then end survey.</li> </ul>
<ul> <li>4. What recreational boating activities do you usually undertake (select all that apply)?</li> <li>A. Fishing</li> <li>B. Wake boarding</li> <li>C. Water Skiing</li> <li>D. Cruising</li> <li>Visiting waterside bars and restaurants</li> <li>F. Hunting</li> <li>G. Other</li> </ul>

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
(	A. West Delta around Antioch Suisun Marsh area B) North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E) Clarksburg, Hood, Walnut Grove, Locke area. F) Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
r	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  Yes, Gas Yes, Food and beverages Yes, bait or fishing supplies Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1) Which marina or marinas do you most often make purchases at?
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	V		
Long or frequent 5			
mph speed zones		/	
before reaching fast			
water			
Nearby waterside bars		X	
and restaurants			
Turbid/muddy water			
Heavy barge/boat			<b>X</b>
traffic			
Excellent		X	
birdwatching			
Loud noise (traffic,			
construction, etc.)			, ,
High winds			X

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

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Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
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  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
  - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- (C) I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
  - Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area. I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
  - I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.

Æ.

- B. Yes 6–10 times
- C. Yes 11–20 times

Ε.

- Yes more than 20 times No.
  - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
  - A. It is somewhat likely that I will use the area.
  - B. It is very likely that I will use the area.
  - C. It is somewhat unlikely that I will use the area.
  - D. It is very unlikely that I will use the area.
    - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

F. Hunting
G. Other

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
(	A. West Delta around Antioch Suisun Marsh area  B North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area C. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1)
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	X7		
Long or frequent 5			
mph speed zones			
before reaching fast			X
water			
Nearby waterside bars	V		
and restaurants			
Turbid/muddy water			
Heavy barge/boat			
traffic			
Excellent			
birdwatching			1.5
Loud noise (traffic,			X
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - (B) Some reduction in frequency of boating activity in the Delta overall
  - C. Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
  - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

I would be somewhat likely to avoid areas where barges create muddy conditions.

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- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
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- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
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- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
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  - I am sure that I would not visit the Clarksburg area at all during the construction project.

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- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times. Yes 6–10 times
  - C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.

F.\

- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
  - It is very unlikely that I will use the area.
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Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
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5.	Which of the following recreational activities (	g areas of the Delta best describes the areas of the Delta that you use for (circle all that apply)?	these
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6.	Where do you keep yo	our boat during the summer	
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		)	
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mph speed zones		<b>S</b>	
before reaching fast			
water			
Nearby waterside bars			/
and restaurants			
Turbid/muddy water			X
Heavy barge/boat			$\mathbf{A}$
traffic			
Excellent			,
birdwatching			
Loud noise (traffic,		(	<u> </u>
construction, etc.)			
High winds			1 X
	·		

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  - Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- I would be somewhat more likely to visit the Clarksburg area. Α.
- I would be much more likely to visit the Clarksburg area. В.
- The construction would not affect the likelihood of me visiting the Clarksburg area. C.
- I would be somewhat less likely to visit the Clarksburg area. D.
- I would be much less likely to visit the Clarksburg area. (F)
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
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Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?



Yes 1-5 times.

- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
  - It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
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G. Other \_\_\_\_

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
ĺ	A. West Delta around Antioch Suisun Marsh area  North Delta around Rio Vista, Walnut Grove, Steamboat Slough area  South Delta around Discovery Bay area  D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area  E. Clarksburg, Hood, Walnut Grove, Locke area.  F. Stockton, Windmill Cove area  G. Other
6.	Where do you keep your boat during the summer
ı	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  Yes, Gas  Yes, Food and beverages  Yes, bait or fishing supplies  Yes, other items  E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1) 2) 2) 2) 2) 2) 3)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	~	<b>X</b>	
Long or frequent 5			
mph speed zones			
before reaching fast		$\propto$	
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water			
Heavy barge/boat		`	X.
traffic			
Excellent		X	
birdwatching			
Loud noise (traffic,			$\chi$
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall Significant reduction in frequency of boating activity in the Delta overall
    - D. Increase in frequency of boating activity in the Delta overall.
    - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - I would occasionally avoid the Delta by switching to boat at locations other than the Delta. I would often avoid the Delta by switching to boat at locations other than the Delta.
    - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

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DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?

A. I have no reaction one way or the other.

- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.

I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
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- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11-20 times
- D. Yes more than 20 times
- (E.) No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
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Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:	[0, 6
Survey taker number:	
Hi, my name is I am a student at the University of California am working on this project as a part of my studies. The purpose of this survey is to and boating activities in the Delta and to measure any changes in recreation and visitation to during construction of the proposed Twin Tunnel Project, sometimes called the BDCP WaterFix project. Your responses will only be reported in aggregate. Can you take about me to complete our survey?  First, I would like to get some general information about your recreational boating action.  1. Do you own a boat or do you rent a houseboat or other type of boat to go boating?	alyze recreational hat might occur or California out fifteen minutes vities.
Own: (Yes) No	
Rent: (Yes) No	
If No to both rent and own then end survey.	
2. Which best describes your boat or boats (select all that apply)?	
A. Cabin cruiser	
B. Wakeboard boat	
C. Ski boat	
(D.) Runabout	
E. Pontoon boat F. House boat	
G. Day boat	
H. Jet Boat	
I. Big Cat	
J. Performance boat	
K. Sail boat	
(C) Kayak/Canoe/Other non-motorized boat	
M. Other: (1.) MAA	
3. Approximately how many times per year do you visit the Delta for recreational bo A. I do not go boating in the Delta.	ating?
B. 1-5	
C. 6–10	
D. 11–15 E. 15–20	
F). More than 20	
If Answer to 3 is A, then end survey.	
• • • • • • • • • • • • • • • • • • •	
4. What recreational boating activities do you usually undertake (select all that apply. Fishing	r)?
B. Wake boarding	
& Water Skiing	
Cruising Visiting waterside bars and restaurants	
F.) Hunting	
G. Other	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
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7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
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11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1) 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1
	3)

Condition	More Likely	No Change	Less Likely
Excellent fishing .			
Long or frequent 5	1		
mph speed zones			I X
before reaching fast			/ \
water			
Nearby waterside bars		X	\',
and restaurants		/ \	<u> </u>
Turbid/muddy water			<u> </u>
Heavy barge/boat			X
traffic			' \
Excellent			
birdwatching			
Loud noise (traffic,	_ ′		$\setminus$
construction, etc.)			-/}
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- (E) No
  - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
  - A. It is somewhat likely that I will use the area.
  - B. It is very likely that I will use the area.
  - C. It is somewhat unlikely that I will use the area.
  - D. It is very unlikely that I will use the area.
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Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
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6. Where do you keep your boat during the summer	
<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>	
7. If answer to 6 is A or B, what is the zip code where you keep your boat during summer?	
8. Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat	
9. If the answer to 8 is A or B, what is the zip code where you keep your boat during the off se	ason?
10. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing or other items from Delta marinas? Circle all that apply.  Yes, Gas B. Yes, Food and beverages Yes, bait or fishing supplies D. Yes, other items E. No	supplies,
11. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make pur Name of Marinas: 1) Sac Dulla Marina	chases at?
2)	
3)	

Condition	More Likely	No Change	Less Likely
Excellent fishing	X'		
Long or frequent 5	,		
mph speed zones			
before reaching fast			
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water		`	
Heavy barge/boat			
traffic			
Excellent	X		
birdwatching	/ \		
Loud noise (traffic,			\ \tag{\chi}
construction, etc.)			
High winds			$\perp \chi$

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

) No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A No change in frequency of boating activity in the Delta overall
    B. Some reduction in frequency of boating activity in the Delta overall
    C. Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.

    D. I would often avoid the Delta by switching to boat at locations other than the Delta.
  - E) I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

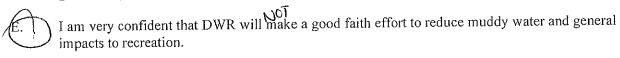
I would be very likely to avoid areas where barges create muddy conditions.

D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.



Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B Yes 6-10 times
  Yes 11-20 times
  Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
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6.	Where do you keep your boat during the summer
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9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  A. Yes, Gas  B. Yes, Food and beverages  Yes, bait or fishing supplies  Yes, other items  E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1) Della Marina.
	3)

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5			
mph speed zones			
before reaching fast			
water			
Nearby waterside bars	1		
and restaurants			
Turbid/muddy water			
Heavy barge/boat			$\checkmark$
traffic			
Excellent	1		
birdwatching			
Loud noise (traffic,	1		$\vee$
construction, etc.)			
High winds			<u> </u>

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- (E.) No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
- 1 am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not to give contact info:

Name: Nacl O'brien

Address: 310 A Merican Falls Dr.

Phone: 925 348 4097

Email:

Survey taker number:	······	L- J
am working on this project as a part boating activities in the Delta and to during construction of the proposed WaterFix project. Your responses w with me to complete our survey? First, I would like to get some generation	I am a student at the University of California at Sa of my studies. The purpose of this survey is to analyze measure any changes in recreation and visitation that m Twin Tunnel Project, sometimes called the BDCP or Carill only be reported in aggregate. Can you take about final information about your recreational boating activities at a houseboat or other type of boat to go boating?	recreational right occur difornia fteen minutes
Rent: Yes No If No to both rent and own then en	ıd survey.	
2. Which best describes your boat	or boats (select all that apply)?	
A. I do not go boating in the De B. 1–5 C. 6–10	per year do you visit the Delta for recreational boatings	?
D. 11–15 E. 15–20 F. More than 20		
If Answer to 3 is A, then end s	urvey.	
4. What recreational boating activity. Fishing B. Wake boarding C. Water Skiing D. Cruising E. Visiting waterside bars and F. Hunting G. Other	ties do you usually undertake (select all that apply)?	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
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(	A Away from the Delta in dry storage or at my residence.  B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1)
	2)
	3)

Condition	More Likely	No Change	Less Likely
Excellent fishing	X/		
Long or frequent 5			- T
mph speed zones			
before reaching fast			\
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water			X
Heavy barge/boat			7
traffic			
Excellent			
birdwatching	/\		
Loud noise (traffic,			
construction, etc.)			
High winds			χ'

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall (C.) Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - would occasionally avoid the Delta by switching to boat at locations other than the Delta.
  - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
  - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- This is not a concern for me.
- (B.) I would be somewhat likely to avoid areas where barges create muddy conditions.
- C. I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
  - I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. J would be somewhat less likely to visit the Clarksburg area.
  - I would be much less likely to visit the Clarksburg area.

    I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the 20. intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. Α.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina. C.
- I would be somewhat less likely to visit the Clarksburg Marina. D.
- I would be much less likely to visit the Clarksburg Marina. Ê.
  - I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy 21. construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company. В.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company. D.
- I would be much less likely to visit the Hood Supply Company. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times. Yes 6-10 times
- Yes 11-20 times
- Yes more than 20 times D.
- No. E.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. A.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area. It is very unlikely that I will use the area.  $(\mathfrak{D})$
- I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

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5.	. Which of the following areas of the Delta best describes the areas of the Delta that you use for thes recreational activities (circle all that apply)?					
(	A. West Delta around Antioch Suisun Marsh area  B) North Delta around Rio Vista, Walnut Grove, Steamboat Slough area  C. South Delta around Discovery Bay area  D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area  E. Clarksburg, Hood, Walnut Grove, Locke area.  F. Stockton, Windmill Cove area  G. Other					
6.	Where do you keep your boat during the summer					
ď	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>					
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?					
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9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?					
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies  P. Yes, other items  E. No					
11. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at Name of Marinas: 1)						
	2)					
	3)					

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5	,		
mph speed zones			
before reaching fast			
water			
Nearby waterside bars		Χ'	
and restaurants			
Turbid/muddy water		X	
Heavy barge/boat			
traffic			\
Excellent	\ \X	l X	
birdwatching	7		
Loud noise (traffic,			
construction, etc.)		Δ	
High winds		L X	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

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  - C. Significant reduction in frequency of boating activity in the Delta overall
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- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A) No change in location of my boating activity.
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This is not a concern for me.

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C. I would be very likely to avoid areas where barges create muddy conditions.

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D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.



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- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?

  - A) Construction vehicles and bridge openings will not affect my use of the Delta for recreation.

    B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
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- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. Α.
- I would be much more likely to visit the Clarksburg area. В.
- The construction would not affect the likelihood of me visiting the Clarksburg area. C.
- I would be somewhat less likely to visit the Clarksburg area. D.
- I would be much less likely to visit the Clarksburg area. Ε.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
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Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A
- Yes 1-5 times.
- Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

G. Other \_\_\_

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
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6.	Where do you keep your boat during the summer
	<ul> <li>A. Away from the Delta in dry storage or at my residence.</li> <li>B. Away from the Delta in a slip in the water</li> <li>C. In the Delta in dry storage or at my residence out of the water</li> <li>D. In the Delta in a slip in the water</li> <li>E. I have a home in the Delta with an attached dock where I keep my boat</li> </ul>
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	A. Away from the Delta in a slip in the water  B Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	No. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  Yes, Gas  Yes, Food and beverages  C. Yes, bait or fishing supplies  D. Yes, other items  E. No
1	If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) the point  2) Awtoh Man
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5			\ \ \ \ \
mph speed zones			X
before reaching fast			
water			
Nearby waterside bars	X		
and restaurants	/ \		
Turbid/muddy water			<u> </u>
Heavy barge/boat			<b>X</b>
traffic			/
Excellent	X		
birdwatching	/ \		
Loud noise (traffic,			X
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

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The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - No change in frequency of boating activity in the Delta overall

    B. Some reduction in frequency of boating activity in the Delta overall
  - C. Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - I would occasionally avoid the Delta by switching to boat at locations other than the Delta.

    | Would often avoid the Delta by switching to boat at locations other than the Delta.

    | Would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B, I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.

I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the 20. intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. A.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina. C.
- I would be somewhat less likely to visit the Clarksburg Marina. D.
- I would be much less likely to visit the Clarksburg Marina.
- I am sure I would not visit the Clarksburg Marina during the construction project. (F.)
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy 21. construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
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- I would be somewhat less likely to visit the Hood Supply Company. D.
- I would be much less likely to visit the Hood Supply Company. Ε.
  - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times. A.
- Yes 6–10 times В.
- Yes 11-20 times Yes more than 20 times
- No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. A.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area. C.
- It is very unlikely that I will use the area. E/
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

or			0			
Name:	Jim	Har	1 rick	3		
Address:	PO	pox	247		ACAMPO	
Phone:	',	220		·		
Email:	5	(209)	913	-	4054	
	{		V (			
ŀ	)					

Prefer not to give contact info:

Survey taker number:	10	~W
Hi, my name is I am a student at the University of California at Stam working on this project as a part of my studies. The purpose of this survey is to analyze boating activities in the Delta and to measure any changes in recreation and visitation that m during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California at State of the Delta and to measure any changes in recreation and visitation that m during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California at State of the purpose of this survey is to analyze boating activities with me to complete our responses will only be reported in aggregate. Can you take about f with me to complete our survey?  First, I would like to get some general information about your recreational boating activities.	recre night o alifori ifteen	anonai occur nia
Own: Yes No  Rent: Yes No		
If No to both rent and own then end survey.		
2. Which best describes your boat or boats (select all that apply)?		
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout Pontoon boat House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other:	o.	
<ul> <li>3. Approximately how many times per year do you visit the Delta for recreational boating A. I do not go boating in the Delta.</li> <li>B. 1-5</li> <li>C. 6-10</li> <li>D. 11-15</li> <li>E. 15-20</li> <li>F. More than 20</li> </ul>	?	
If Answer to 3 is A, then end survey.	_	
4. What recreational boating activities do you usually undertake (select all that apply)?  A. Fishing  Wake boarding  Water Skiing  Cruising  Cruising  Visiting waterside bars and restaurants  F. Hunting		
G. Other		

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A West Delta around Antioch Suisun Marsh area B North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	A. Away from the Delta in dry storage or at my residence.  B. Away from the Delta in a slip in the water  In the Delta in dry storage or at my residence out of the water  In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	D. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  Yes, Gas Yes, Food and beverages Yes, bait or fishing supplies D. Yes, other items E. No
1	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?  Name of Marinas: 1)
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5	' '		* -
mph speed zones			
before reaching fast			
water			
Nearby waterside bars		X	
and restaurants		/ \	
Turbid/muddy water			<u> </u>
Heavy barge/boat			
traffic			
Excellent		\ X	
birdwatching			
Loud noise (traffic,			
construction, etc.)			
High winds		<u> </u>	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

This map shows the tunnel construction project. The plan is to

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - (A.) No change in frequency of boating activity in the Delta overall Some reduction in frequency of boating activity in the Delta overall
  - C. Significant reduction in frequency of boating activity in the Delta overall
  - D. Increase in frequency of boating activity in the Delta overall.
  - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
  - A. No change in location of my boating activity.
  - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
  - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
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The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

I would be somewhat likely to boat more often in areas where barges create muddy conditions.

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DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
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Not I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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Construction trucks will also use other roadways in various locations throughout the Delta.

18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?

A) Construction vehicles and bridge openings will not affect my use of the Delta for recreation.

- B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
- C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
- D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
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Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
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- E. I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
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- D. I would be somewhat less likely to visit the Hood Supply Company.
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Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- (A)
- Yes 1-5 times.
- S. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
  - It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:
Hi, my name is I am a student at the University of California at Santa Cruz. I am working on this project as a part of my studies. The purpose of this survey is to analyze recreational boating activities in the Delta and to measure any changes in recreation and visitation that might occur during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California WaterFix project. Your responses will only be reported in aggregate. Can you take about fifteen minutes with me to complete our survey?  First, I would like to get some general information about your recreational boating activities.  1. Do you own a boat or do you rent a houseboat or other type of boat to go boating?  Own: Yes No  Rent: Yes No
If No to both rent and own then end survey.
<ul> <li>2. Which best describes your boat or boats (select all that apply)?</li> <li>A. Cabin cruiser</li> <li>B. Wakeboard boat</li> <li>C. Ski boat</li> <li>D. Runabout</li> <li>E. Pontoon boat</li> <li>F. House boat</li> <li>G. Day boat</li> <li>H. Jet Boat</li> <li>I. Big Cat</li> <li>J. Performance boat</li> <li>K. Sail boat</li> <li>L. Kayak/Canoe/Other non-motorized boat</li> <li>M. Other:</li> </ul>
<ul> <li>3. Approximately how many times per year do you visit the Delta for recreational boating?</li> <li>A. I do not go boating in the Delta.</li> <li>B. 1-5</li> <li>C. 6-10</li> <li>D. 11-15</li> <li>F. More than 20</li> <li>If Answer to 3 is A, then end survey.</li> </ul>
<ul> <li>4. What recreational boating activities do you usually undertake (select all that apply)?</li> <li>A. Fishing.</li> <li>B. Wake boarding</li> <li>C. Water Skiing</li> <li>C. Cruising</li> <li>E. Visiting waterside bars and restaurants</li> <li>F. Hunting</li> <li>G. Other</li> </ul>

5.	Which of the follow recreational activities	ing areas of the Delta best describes the areas of the Delta that you use for these s (circle all that apply)?
(	B. North Delta arou South Delta arou D. Central Delta aro	
6.	Where do you keep	your boat during the summer
(	B. Away from the C. In the Delta in a D. In the Delta in a	Delta in dry storage or at my residence. Delta in a slip in the water lry storage or at my residence out of the water slip in the water the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A	or B, what is the zip code where you keep your boat during summer?
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12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

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Long or frequent 5			
mph speed zones			
before reaching fast			
water			
Nearby waterside bars	1		
and restaurants			
Turbid/muddy water			X
Heavy barge/boat			
traffic			
Excellent	<b>/</b>		
birdwatching	/ \		
Loud noise (traffic,		and the same	X
construction, etc.)			//
High winds			X\

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes No

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- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
  - A. No change in frequency of boating activity in the Delta overall
  - B. Some reduction in frequency of boating activity in the Delta overall
  - C. Significant reduction in frequency of boating activity in the Delta overall
  - Increase in frequency of boating activity in the Delta overall. (E. ) will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
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    B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
    - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
    - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
    - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

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DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
  - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
  - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
  - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
  - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
  - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
  - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
  - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.

B. I would be much less likely to visit the Clarksburg Marina.

I am sure I would not visit the Clarksburg Marina during the construction project.

- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- I would be much less likely to visit the Hood Supply Company.

I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- \_A. Yes 1–5 times.
- B. Yes 6–10 times Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
  - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:
Hi, my name is I am a student at the University of California at Santa Cruz. I am working on this project as a part of my studies. The purpose of this survey is to analyze recreational boating activities in the Delta and to measure any changes in recreation and visitation that might occur during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California WaterFix project. Your responses will only be reported in aggregate. Can you take about fifteen minutes with me to complete our survey?  First, I would like to get some general information about your recreational boating activities.
1. Do you own a boat or do you rent a houseboat or other type of boat to go boating?  Own: Yes No  Rent: Yes No  If No to both rent and own then end survey.
2. Which best describes your boat or boats (select all that apply)?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other:  3. Approximately how many times per year do you visit the Delta for recreational boating? A. I do not go boating in the Delta. B. 1–5 C. 6–10 D. 11–15 E. 15–20 F. More than 20 If Answer to 3 is A, then end survey.
4. What recreational boating activities do you usually undertake (select all that apply)?  A Fishing Wake boarding Water Skiing Cruising Cruising Visiting waterside bars and restaurants Hunting G. Other

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
(	West Delta around Antioch Suisun Marsh area  B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area  South Delta around Discovery Bay area  Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area  Clarksburg, Hood, Walnut Grove, Locke area  Stockton, Windmill Cove area  G. Other
5.	Where do you keep your boat during the summer
(	Away from the Delta in dry storage or at my residence.  B. Away from the Delta in a slip in the water  O. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water
7	E. I have a home in the Delta with an attached dock where I keep my boat  If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
7.	If allswer to 6 is A of B, what is the Zip code where you keep your code assume
8.	Where do you keep your boat in the off season?  A. Away from the Delta in a slip in the water  B. Away from the Delta in dry storage or at my residence  C. In the Delta in dry storage or at my residence out of the water  D. In the Delta in a slip in the water  E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	No. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.  (A.) Yes, Gas  (B.) Yes, Food and beverages  (C.) Yes, bait or fishing supplies  (D.) Yes, other items  (E.) No.
11	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) Delta Mana
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5			
mph speed zones			X
before reaching fast			
water	·		V
Nearby waterside bars		$\times$	
and restaurants			
Turbid/muddy water			
Heavy barge/boat			
traffic			
Excellent	</td <td></td> <td></td>		
birdwatching			
Loud noise (traffic,	,		\ X
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

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- B. Yes 6–10 times
- Yes 11–20 times
  Yes more than 20 times
  No.
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  - B. It is very likely that I will use the area.
  - C. It is somewhat unlikely that I will use the area.
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Prefer not to give contact info:

Name: Ferin Briggs
Address: Pibrista
Phone: 70740 9375

Email: